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Citrus Aphids *Citrus Aphids*

By J. R. Watson

Those of you who were at our laboratory exercise on Monday afternoon were shown by Mr. Thompson the four species of aphids which may be found on a citrus tree: namely, the Melon Aphid, which has been found on citrus ever since citrus has been grown in Florida; the Brown Citrus Aphid, the Green Aphid and the Spiraea Aphid, or as we have called it here in Florida the New Citrus Aphid. It is of this latter aphid of which we wish to speak this morning as the other aphids are ordinarily effectively controlled by small wasp-like insects that Mr. Thompson showed you on Monday. It is the failure of this parasite to thrive on the new citrus aphid which is responsible for the fact that it has done immensely more damage than the old melon aphid ever did on citrus. The origin of this insect has never been completely cleared up. They were first noticed in Florida on citrus in the spring of 1923, altho curled leaves and the testimony of growers would indicate they were in some groves at least as early as the fall of 1922. Its native host plant is the Spiraea, a plant which does not grow wild in Florida but is commonly planted as an ornamental, particularly one species called the "bridal wreath"; however, the plant grows wild all thru the northern states. It looks as if sometime during the last ten years or so a strain of this aphid growing on spiraea in Florida wandered over and adapted itself to citrus. But the mystery is why it did not do it long ago. Furthermore it is present in

such widely separated places as Florida, California and Honduras but absent as citrus pest in intermediate localities. This adds to the mysteries of its origin. In the apple growing sections there is a very similar insect known as the Green Apple Aphid. It has not yet been definitely established that these two insects are not one and the same thing. In Florida when first noticed they were confined to three or four counties within the Tampa and Bradenton section. From this center they quickly spread thruout the citrus sections of Florida with the exception of the main satsuma belt. For some strange reason they have never attacked satsumas in northern Florida altho satsumas are among their favorite host plants in central Florida. It is possible that the long dormant season of the winter is responsible for their failure to infest this plant, but they are present thruout the satsuma belt on spiraea, often within 50 feet of a satsuma tree.

Being a northern insect, the new citrus aphid thrives best during the winter time, altho not during the very coldest weather. As summer comes on their breeding is slowed up; it takes them longer to mature and they have fewer young per day. The heavy rains of summer knock them off the trees and dash them to death on the ground. A fungus disease often becomes very effective and their other enemies, such as lady-beetles and syrphus flies become more abundant. For this reason this aphid undoubtedly will always be a pest

mainly of the early spring flush of growth. It is only on this flush of growth in general that it will pay the grower to fight aphids. Fortunately this aphid can live only on the most tender growth of citrus. As soon as the leaves begin to approach full size, it becomes unsuitable for food for aphids. Indeed it would seem that even new shoots which put out during dry weather such as we had the past spring are not suitable for the best development of the aphids; and it has been observed from the very first that the first sprouts put out by a transplanted tree in the spring are not attacked by aphids. They must have for food only the most tender and succulent growth. This is the weak point in their life history which gives the grower the most promising chance to combat them.

The habit of the citrus tree to throw three main flushes of a season and then to more or less go dormant between the flushes is very hard on aphids. If all citrus trees put out their flush at the same time and all went dormant together, it would be practically impossible for the aphids to become a pest; but because there is liable to be a little growth at almost any season of the year, aphids are able to live over, at least in small numbers, the year round. There are, of course, other host plants besides citrus which these aphids can live, but most of these are rather overflow plants which became infested only when the aphids are driven from the citrus by the hardening of the foliage. None of them are of great im-

portance in tiding over the aphids from one flush of growth to another. The great bulk of aphids which infest our trees are raised on citrus. The time of year when citrus is most dormant is during the winter and this is the time when aphids can be fought most effectively and cheaply. Aphids have not been so severe during the past two springs. This has been due entirely to the character of the winters. Our breeding work at Lake Alfred has shown that when given plenty of suitable food the aphids are going thru their life history and producing just as many young as they ever did. Their comparative scarcity during the past two seasons is not due to any loss of vitality of the aphids; but the winters have been cold or dry or both, with the result that there has been very little suitable food for the aphids, and they have died out to such an extent during the winter that when the spring flush of growth did come there were not enough to produce sufficient numbers to greatly injure this spring flush of growth before it hardened up. Altho predictions are always dangerous it has been said that the only excuse for science is to make predictions, so I am going to predict that just as soon as we have winters like that of 1923-1924 and 1924-1925, i. e., winters free of destructive freezes and with normal precipitation, we may expect just as much trouble from aphids as we had during the springs of 1924 and 1925 unless growers take measures to prevent it. The big idea I wish to bring you this morning is that the grower himself can do to the citrus aphid just exactly what nature has done during the last two winters, i. e., reduce their numbers during the winter time to such a low point that they can't possibly breed fast enough to heavily infest the spring growth of citrus before it has hardened up enough to be out of danger—this in spite of the remarkable rapidity with which aphids can breed. As I have pointed out to you many times an aphid can begin to have young when she is only a week old and in favorable weather with good food she produces, on the average, six aphids per day; and they are all potential mothers. No males are produced except during the cold snap of the winter and then very few.

A program for fighting aphids then, should be this: Begin as early as November or certainly in December and destroy every aphid seen in your grove. At that time of year they will be confined almost entirely to young trees and water sprouts. Old bearing trees will be too dormant

to support aphids. In the early winter most of the new growth on young trees will be out on the ends of branches. A very good way to deal with this is to go thru the grove with a bucket containing some good insecticide either nicotine sulphate and a little soap or derrisol and dip the branches into this liquid. If swished about a little in the liquid, every aphid will be killed. One grower tells me that when working among his young trees in the winter time he carries in his pocket a paper bag with some nicotine-sulphate-lime dust in it. When he sees an infested twig he puts the bag over it and gives it a vigorous shake until each aphid is covered with dust, then he takes the bag off and puts a rubber band around the top to hold the dust, then puts it back into his pocket. Whatever means you adopt, destroy every aphid you see in your grove in the early winter. Later in the winter, say late January or early February, when young shoots may begin to push out on the larger branches and trunk of the trees where it is impossible to dip them, one will need to resort to dusting the trees. Use, for this purpose, a 3% nicotine-sulphate-lime dust; and let me emphasize that to do effective work the air must be calm. The aphids must be exposed to this dust for a full minute. If there is enough air to sway the spanish moss, there is too much to dust with a hand duster. Spot dusting has been very disappointing in its results except where one could have an absolutely calm atmosphere. Unfortunately in the spring of the year such quiet times are rather confined to an occasional early morning or night. For this reason we have urged the growers to construct tents to cover their young trees such as the sample we have here. Our average kill under these tents has been better than 99.6%.

Let me emphasize here that it doesn't pay to take any half way measure with aphids. Let me illustrate. When spraying for whitefly and purple scale, we usually regard an 85% kill as a good commercial job. If you hire a man to spray and he kills 85% of the scale insects and whiteflies in your grove, you have no particular kick coming; but let us see what happens if you do no better than that with aphids. Say we had a hundred aphids on a twig and you go out to kill 85 of them, of the 15 left, let us say, for ease of calculations, that 5 are adult females producing young at the normal rate of six per day. In 24 hours they will produce 30 aphids, with the original 15, you

will have 45 aphids. The next day they will produce 30 more, but by that time the 10 young ones have commenced to produce young, let us say about 20 young, and with the original 15 again you have at the end of just 48 hours 110 aphids more than you had when you started. In other words if you do this every day you will just be keeping the aphids down to the same original number; you will not be cleaning up the infestation. But if you kill 996 out of every 1000, it will be a good while before the four that are left could increase to the original thousand, and by that time the growth should have hardened up. With these tents one is absolutely independent of wind. The fact is that a good breeze blowing, as long as it doesn't blow the tents over, is an advantage. By blowing the cloth around it circulates the dust inside of the tent.

By these different means, then, let us clean up our groves thoroly during the winter time so that by the time the first of February, when growth may be starting on the trees, there will be practically no aphids in the grove. Then, as early as we dare, from the standpoint of possible injury, let us stimulate the growth on our trees by applying spring fertilizer, start the cultivator, etc. Let us do every thing consistent with good grove practices to push the spring growth along so as to get it out and hardened up before aphids become abundant enough to do commercial damage. But I hear someone saying that there is no use of cleaning up my grove for my neighbor across the way will do nothing, and they will simply fly from his grove into mine. "That excuse will not work because there will be no danger if the growth begins to harden on some of the trees. From the standpoint of locomotion we have two kinds of aphids—winged ones and wingless ones. Whether the aphid will be winged or wingless will depend almost entirely upon the character of its food. If the growth on the tree is succulent and with new growth constantly appearing, almost no winged forms will be produced—at least 90% of the aphids will be wingless. On the other hand let the growth begin to harden up on the trees so that there is a scarcity of food on the trees, and often 90% of the aphids will develop wings. Observations in the field have shown us that we need not expect any general migrations of aphids until about the middle of March. By that time the grower should have his growth so far along that it will be practically out

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Starting the Young Grove

By Alfred Warren, County Agent, Fort Pierce, Fla., at Farmers and Fruit Growers Week

Introduction

"As the twig is bent so the tree is inclined", is an old adage; yet it holds just as true today as it did years ago when it was first spoken.

The starting of a young grove is the laying of the foundation of the grove that is to be,—the grove of ten or fifteen years hence? No; of fifty, seventy-five, or even a hundred years hence. Too often the man who starts a grove is so anxious to get his trees into the ground that he does not stop to visualize what the trees that he is setting now, will look like fifteen or twenty years hence. For this reason he does not make the preparation that he should in order to have his trees grow and develop as he would wish them to.

Mistakes Too Often Made

A very common, but very sad mistake that is made only too frequently is the setting of trees too hastily by our new settlers and developers from the North, who come to the citrus

land, and immediately starts clearing as much land as his ambition and pocketbook will allow, as he is so anxious to start that orange grove of which he has been dreaming for so many years and which is to give him an independent income in a very few short years. Therefore, that very winter a larger or smaller acreage is planted to trees on the raw land that had not further preparation of soil than the mere clearing of whatever native growth there was on it.

The remainder of the first clearing is devoted to the raising of truck crops of various kinds. As time goes on more land is cleared. The second winter another planting of trees is made. This time on land that was cropped for one season followed by a cover crop during the summer. The third year more trees are planted on ground that has now had two years of cultivation and the cover crops of two summers turned under.

Now, this is what invariably hap-

procedure. Every citrus grower will appreciate to its full meaning the phrase, 'to build a grove'. To grow and develop a grove is to build it from the ground up and to stay with it and keep on building and building, until,—well, this kind of building will never be complete. However, the satisfaction in the grove building, even though it is an ever continuous process, comes in the ever increasing results that are obtained in the continued growth and development of the trees, in the studying and solving of old and new problems in the hope of producing that quality of fruit and tree that is a source of both delight and profit to mankind.

Choosing of Soil

The first essential then in the starting of a young grove is the choosing of good soil well drained. Although the citrus group, taken as a whole, will grow with greater or less satisfaction on a great variety of soils,



belt of Florida with the sole hope and ambition of getting an orange grove started just as soon as they can procure the trees and put them into the ground, regardless of soil conditions, or preparation of the land, or anything else.

Of course, in a way you cannot blame them, for they are not familiar with our soil conditions and the requirements that call for the best growth and productiveness of the little evergreen tree that is to bear the golden fruit of his dreams within a short time. So the man from the northern deciduous fruit sections is, as a general rule, too over-zealous and makes his first planting before the ground is really ready.

Necessity of Preparation of Soil

Time and time again this sort of procedure has come to the writer's observation. The new settler comes down from the North, say, in the fall of the year, takes possession of his

pens. Say, at the sixth year from the time the man started his development, as he takes stock of his grove plantings he finds, that in size and vigor and promise of making good, his second years planting is ahead of the first, and his third year planting is very often superior to that of the second and first. Of course there are exceptions to the rule, but take most any soil other than rich prairie and hammock, a more satisfactory grove in every way can be raised by cultivating the new land for a few years previous to planting.

The Building of a Grove

When you speak to an old and successful citrus grower about his grove he will point with great pride to it, be his grove large or small, and will say with a tone of unmistakable self-satisfaction,—and deservedly so,—"I have built that grove."

Now, the building of anything presupposes some definite plan of

yet experience has taught us that to obtain best results, as a business and commercial proposition, there are a few soil types more particularly adapted to profitable citrus growing than are other types. Probably the ideal citrus soil in Florida is still the hardwood and cabbage hammock with its clay and marly subsoil and its storehouse of centuries' accumulated humus. However, since the total acreage of hammock land of this State is decidedly limited in the various localities, other classes of soil have been resorted to with excellent results.

Since the outstanding characteristics of a hammock soil are:

1. Fair to good drainage, — otherwise trees would not have grown naturally there.
2. The clayey and marly subsoil.
3. The abundance of humus in the top soil of fine sand or sandy loam.

It follows then that any type of the various series of Florida soils may be considered worthy of citrus culture if it is; first, well drained; second, is underlain with a clay or marly clay subsoil for 18 to 24 inches below the surface; and third, the top soil composed of a fine sand or sandy loam with a good supply of humus.

Speaking in terms of the soil technologist the desirable kinds of soil would be the fine sand, the very fine sand, and the sandy loam types of a variety of soil series, such as Fellowship, Parkwood, Hernando, Bladen, Coxville, and others. Or, in our common Florida terms, the well drained soils of the flatwoods, prairie, hammock, high pine land, whose top soil is of a fine texture supplies with a good amount of humus, and whose subsoil is composed of clay or marly clay.

Preparation of Soil

Now, having selected our soil type, we are now ready for the preparation of the soil.

Other than prairies and hammocks, it seems that best results, as stated in the beginning, are obtained where the soil is first cropped to field or truck crops for one, two, or even three years. During the summer months the ground should be sown to some leguminous cover crop to be turned under the following fall. By following such a system three very important things are accomplished: first, in order to protect the cash crops from high water, a good system of surface drainage is necessarily installed; second, the topsoil is sweetened and put in good tilth by reason of the large amount of humus that is added; and third, the ground is bedded up to somewhere near the height at which the citrus tree is to be grown on the particular soil.

Kinds of Fruit and Stock

Before the prospective grower orders his trees from some nursery of good standing, he should first well acquaint himself not only with the varieties that are standard and do best in his locality, but he should also learn what varieties are considered standard for the State as a whole, and also what the market requirements are now and tend to become in the near future.

The citrus growers of Florida are beginning to appreciate the great value in the solving of some of the marketing problems by offering for sale the least number of definite standard varieties and at the same time extending over the longest possible harvesting period.

With regard to root stock, it seems

pretty definitely settled that for the production of quality fruit sour orange is the one to use. The sour orange seems to make good growth on any of the heavier soils underlain with clay subsoil. However, on the light sandy soils of the ridge sections, the loose friable soils of the flat woods, hardpan lands, and the sand dune ridges, the rough lemon seems to be the only stock that will make a satisfactory growth. But this better growth of tree is made, of course, at the expense of quality fruit, and after the fruit has reached a certain stage in its ripening period there is a tendency for it to become insipid and to dry out at the stem end. This condition is usually very strongly noted in such varieties as temple, tangerine, and pineapple.

With some varieties of citrus there seems to be a decided preference of soil types. For instance, grapefruit budded to sour stock makes excellent growth on marly soils; and when budded to rough lemon the growth is even better. On the other hand, oranges and tangerines, budded to either stock, will french severely and make but a meagre and scrubby growth on such soils.

A great deal of observation and research work is yet needed along the lines of compatability and rootstock to scion, and the adaptability of these combinations to the various soil types and soil series.

Planting the Trees

The soil having been properly prepared, the varieties of fruit on their proper stock selected, now comes the planting. Probably the best time is during December and January in the southern part of the State, and as late as March in the northern part. During favorable seasons, good results are also obtained with May and June plantings.

On good heavy soil grapefruit should be spaced 25x35 feet. Oranges and tangerines could take a little less spacing, but even with them at twelve years such a spacing is not too great. On lighter soils, especially when budded to sour orange, 20x30 feet makes an ideal distance, considered from various standpoints.

Where good beds have been through previous cropping and cultivation of the soil, individual mounds need not be made very high. However, where no such bedding has been done, then the proper height, incident to good drainage and character of soil, should be determined for the mounds. These should be made only wide enough to warrant the proper holding of soil moisture about the root system of the little tree,

The smaller mounds will allow for closer plowing toward the trees and the crest of the beds; whereas, when a wide mound is made an ugly trough of greater or less depth and width is always left between the trees, a condition requiring a lot of hand work later on at considerable expense.

The trees should be set by an experienced setter at the same depth as they grew in the nursery, and well watered at the time of setting. This is very important for two reasons: first, it settles the dirt round about the roots of the tree; and second, it supplies the dry, thirsty, necessarily much reduced root system with the greatly needed moisture for the transplanted tree to establish itself in its new location and to start its life functions again. This watering should be kept up at regular intervals of two weeks, unless there is sufficient rainfall.

After planting the trees should be mulched with hay or trash to prevent excess evaporation of moisture and to keep the ground cool over the root system.

The first application of fertilizer should be made after the trees have become established; that is, after they have made some growth. After that a light application should be made about every six or seven weeks and hoed in. The last application should be made not later than along the first of September; this will give the tree time to make a good growth and then harden up for the winter season. At least the last two applications should be lower in ammonia and higher in phosphoric acid and potash than in the ones used during the spring and summer months, as these should be of an analysis high in ammonia and low in both phosphoric acid and potash. In all, about three to four pounds of fertilizer may be used during the first year.

The second year the treatment should be about the same as during the first year in the way of frequency of fertilizing and hoeing. The total amount of fertilizer for the year should be from six to eight pounds. Watering and mulching are not needed the second year only in extreme cases, since by this time enough weeds and grass should grow on the ground to furnish all the mulching material needed as the trees are hoed, and the root system by this time should be well enough established as to need no further watering except under extremely dry conditions.

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Rust Mites

By J. R. Watson

Rust mites injure the pocketbook of the grower in four ways. First, and probably most important of all, is the discoloring of the fruit. True, this discoloring is only skin deep and the orange is just as good as any other and some growers will even insist that russeted oranges are sweeter than bright oranges. This impression, however, is probably due to the fact that russeted oranges are less liable to be picked before they are mature. Careful studies of the bright and russeted fruit from the same tree, the same year, have failed to bring out the common opinion that a russeted orange is sweeter than a bright one. Be that as it may, a russeted fruit is discounted on all markets—the discount about 72 cents per box. 72 cents per box may well cover the difference of growing oranges at a loss and growing them at a good profit. Oranges are an ornament as well as a food in the eyes of most housewives and are sold more on their appearance than on their eating qualities. This, of course, is more or less true of any commodity but more particularly true of oranges.

In the second place russeted oranges are smaller in size, therefore it takes more of them to fill a box; or, in other words, the grower gets fewer boxes from his trees, and the cull pile is increased in that many russeted oranges which are too small to sell would, had they been bright, been of marketable size.

In the third places russeted oranges are more likely to decay than bright ones. This has been proven by a series of careful experiments by Mr. Yothers.

In the fourth place the rust mites undoubtedly injure the trees as well as the fruit. Just to what extent their puncturing of the leaves and stems interferes with normal functioning of the trees is not definitely known, but in extreme cases of rust mite infestation, the injurious effect on the trees can be noticed.

In order that we may better understand the control measures for rust mites, we will briefly outline the life history of the pest. In the laboratory Monday Mr. Tiscot showed you the eggs of the rust mite—small, round bodies of a yellowish color. These hatch in about three days when the weather is warm, and the young rust mites hatching out from these eggs complete their growth and are in turn

ready to lay eggs in about two weeks. During the next two weeks of its life history a female lays about 500 eggs. It is thus evident that when conditions are favorable rust mites increase with great rapidity. Favorable conditions are warm and dry weather. Hot, moist weather is apt to start a fungus disease which is sometimes extremely effective in destroying them. The fact is that during the summer this fungus usually completely controls rust mites. We do not expect many rust mites in our groves during the rainy season, at least not after the rainy season has gotten a good start. It is therefore during hot, dry weather that one must expect trouble from rust mites or immediately following such weather. Often the heavy infestation of rust mites does not occur during our dry weather but immediately following the dry period. The reason for this is obvious. At the end of a long, dry period, such as we ordinarily have in the spring, the fungus which causes the disease is scarce and it takes several weeks of favorable weather to raise enough of this fungus to bring on a general infestation of the rust mites. During this time rust mites, of course, are multiplying so that the heaviest infestation of rust mites occur often not during the driest weather but immediately following it. In scientific parlance there is a lag here; just as the hottest part of the day is not usually when the sun is directly overhead but some hours later. However, it is important to remember that the high humidity and heat of summer keep the rust mites down and not the calendar. If we should happen to have an abnormally dry season during August rust mites would be likely to appear as they did two years ago. One must therefore be on the constant lookout for rust mites. One cannot give any particular date for combatting them in a grove. In other words we cannot give you a spray schedule for rust mites. To spray for rust mites at any particular time, as some Florida growers still do, is a wasteful proceeding and results in spraying or dusting groves when there are no, or few, rust mites present. The only economical way to fight rust mites is to provide one's self with a magnifying glass, preferably one magnifying about ten times, and constantly watch one's grove for the appearance of rust mites in numbers on the

fruit. Such a glass will cost from anywhere from \$1.50, for a cheap one, to \$7.00 or \$8.00 for a more expensive one. I know of no better investment for a citrus grower.

Rust mites do not ordinarily trouble fruit until it gets in the neighborhood of an inch in diameter. In the early spring before the fruit is large enough to be attractive to the rust mites, they will be found on the leaves and on very young and tender twigs between the leaves—the twigs of the current year's growth. They do not ordinarily appear on oranges until late May or June but they often appear on grapefruit as early as April. This, of course, applies to fruit of the current season. Late fruit, such as Valencia oranges which have hung on the tree from the previous year, or June bloom fruit, is liable to rust mite attack any time in the spring when the weather is sufficiently warm and dry. One fighting rust mites then should provide oneself with a glass and every few days should inspect the fruit of his grove and if rust mites are found in numbers on the fruit, measures should be taken to kill them. They must be watched from the time the fruit is large enough to be attractive until it is picked, but they must be watched with especial care during dry, hot weather or immediately following such weather. Usually June is the most critical month for oranges. It is usually necessary to take control measures against rust mites in June or early July and on grapefruit somewhat earlier.

In looking for rust mites on fruit, one will get a much better idea and save himself a great deal of trouble if he will bear in mind the reaction of rust mites to light. Rust mites do not like direct sunlight, consequently the sunny side of a fully exposed citrus fruit is usually free from rust mites. One should look on the shady side of such a fruit for rust mites. On the other hand fruit back in the tree, where it more or less shaded by leaves, is more apt to be attacked on the more exposed portion. The side toward the interior of the tree will usually be free of rust mites. It is well known that an orange back in the center of the tree where it is always shaded is seldom attacked by rust mites. Often rust mites will form in a ring around an orange. The more

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Freight Rate Decision May Save Growers \$1,000,000

Based upon a crop of 17,000,000 boxes, the annual saving to Florida growers as a result of the decision of the Interstate Commerce Commission in the Florida Line Haul rate case will appropriate \$1,000,000 annually, according to a statement issued by J. Curtis Robinson, secretary-manager of the Growers and Shippers League of Florida.

Mr. Robinson's statement in full is as follows:

The League disagrees with statements appearing in the Press that the saving will approximate \$3,000,000.00.

The Growers and Shippers League who presented the evidence to the State Railroad Commission upon which it based its Complaint against the present rates, has refrained from expressing an opinion as to the saving the Decision will bring about until an analysis could be made of the bases prescribed by the Interstate Commerce Commission for constructing future rates. It was also necessary to make a check of the results of applying those bases in the construction of the proposed rates. This analysis and check has been made by the League with the assistance of its Rate Analyst, T. D. Geoghegan, of Washington, D. C.

The Commission did not prescribe specific through rates to any destinations except to far western points located in so-called Transcontinental Territory to which it prescribed through rates of \$1.80 per 100 pounds from Florida. To other destination territory it only authorized a method for the construction of future rates. This method for various bases stripped of as much of its technical verbiage as possible provides for the following application:

1—To Central Freight Association, Illinois and Southern Territory, 6th Class rates shall be the rates per 100 pounds to be applied on oranges and grapefruit.

2—To Eastern, Buffalo-Pittsburg and New England Territory 40% of 1st Class rates are to be applied, based however, after first revising the present 1st Class rates to that territory to a basis which will reflect

the same 1st class rate north of Virginia Gateways as for an equal distance north of the Ohio River Gateways when destined Central Freight Association Territory.

3—To Western Trunk Line destinations, Wisconsin points north of Illinois Freight Association territory, Sioux Falls, S. D., Minnesota on, east and south of C.S.P.M.&O. Ry., points in Iowa and Missouri on, north and east of the Missouri River, and in Nebraska and Kansas on the Missouri River, rates are to be made 40% of the 1st Class rates prescribed by the Commission in the third supplemental report in the Southern Class Rate Investigation, Docket 13494, 128 I.C.C.

4—Rates to Kansas-Missouri Territory and in the southwest including Arkansas, Louisiana west of the Mississippi River, Oklahoma and Texas differential territories are to be made up of 40% of the 1st Class rate from Jacksonville, Florida, plus the difference between the 6th Class rates from points of origin to Vicksburg, Mississippi, and from Jacksonville to Vicksburg.

5—To destinations between Western Trunk Line Territory and Transcontinental Territory the Commission says the rates should be equitably graded as between the rates prescribed to the most western points in Western Trunk Line Territory, (like Minneapolis, Sioux Falls, S. D. and Omaha, Nebraska), and the rate of \$1.80 per 100 pounds prescribed to Transcontinental Territory.

6—The rates thus authorized are subject to a minimum of 32,400 pounds and an estimated weight of 90 pounds per standard package.

It will be seen by the foregoing that first a very careful study had to be made of the Class Rates prescribed by the Commission in their third supplemental report in the Southern Class Rates Investigation. After it was determined what rates were authorized in the Class Rate Decision, the proper percentages of the Class rates as proposed by the Commission had to be applied to obtain the future rates per 100 pounds from various points of origin to each destination territory as prescribed in the Commission's Decision. These rates were then reduced to a per box basis of 90 pounds for comparison with the

present rates per box.

Comparisons of proposed future rates with present rates from representative shipping points in each county to a great many representative destinations in the several territories prescribed by the Commission was made.

My estimate of the saving to the growers based on the distribution of approximately 17,000,000 boxes was based first upon taking into consideration the percentage of the crop distributed into the six areas enumerated by the U. S. Department of Agriculture Bureau of Economics Citrus Deal showing the distribution for 1926-27, and second taking into consideration the probable increase in distribution particularly of Florida grapefruit in Western Trunk Line, Kansas-Missouri Territory, far Western Transcontinental destinations and points between Western Trunk Line and Transcontinental Territory, as a result of the marked reductions in the rates to that territory.

The Commission's Decision will result in decreases in varying amounts in cents per box from practically every county to all territories prescribed by the Commission except to New England Territory. To New England Territory there will be slight increases from practically all counties except points located on the Florida East Coast Railway, where the reductions will range from about 3c per box from Cocoa to 7c from Ft. Pierce and Homestead. The increases range from 1c per box from Lake Wales, Tampa, Clearwater, 4c Winter Haven, Orlando, Haines City and Deland to 6c from Crescent City.

There will be increases averaging about 1c per box to New York. The rate from Lake Wales is decreased 1c. The increases range from 1c at Haines City, 2c Kissimmee, 3c Winter Haven and Crescent City, while decreases range from ½c Wauchula, 2c Punta Gorda, and 5c Cocoa, 7½c Ft. Lauderdale, 8c Ft. Pierce, 9c from Homestead and Jupiter. While there are a few increases to Philadelphia like ½c from Orlando, 1c from Kissimmee and Sanford, 2½c from Winter Garden and 3c from Crescent City, the decreases range from 1c to 9c per box.

It is impossible to describe in de-

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The Clearing House Active In Preparatory Work

By A. M. Pratt, Acting Chairman, Operative Committee

"It's the first of September. In two or three weeks Florida will be shipping its first new crop grapefruit. Is the Clearing House ready? What is being done? Who is going to manage it?"

These or similar questions are being asked. In the absence of Mr. C. C. Commander, Chairman of the Operating Committee, possibly as Acting Chairman I should try to tell you.

No one familiar with the many informal conferences, as well as the formal meetings, could feel other than highly pleased with the actual work going on. Aside from the hard work and the time being gladly given, the most striking impression is the team-work spirit. We are pulling together. There is a sensing of the serious job undertaken, balanced by a common sense attitude of frankly recognizing and discussing without feeling the competitive phases of our business, with no individual taking himself too seriously in his particular viewpoint.

All meetings have been devoid of business politics. All discussions have indicated that the spirit running the Clearing House as an outstanding business institution has been the motive of all. Playing for effect or cheap popularity is absent. It is already a hard working sound going concern. And it is bound to succeed regardless of the season we are entering being one that will try to the utmost every aspect of its purposes.

Many have been away. It's been vacation time and the time for seeing the trade. But there's been lots going on. On August 23rd, the Advertising Committee and Directors heard the first reports in detail of two advertising agencies. On Thursday, September 6th, we heard the final report from many more agencies. Newspaper advertising in concentrated areas, national advertising in colors, educational work, general publicity, these and many other subjects were discussed from every angle in an effort to satisfy ourselves of the best course to follow.

On August 30th, the Operating Committee were in session all day. Again it was the same hard working attitude. The necessity for standardization for dependableness of all brands, for gaining and holding the

confidence and good-will of the trade on the products of all members, was thrashed over with its difficulties. The controlling thought that the money spent in advertising would be wisely spent only if the goods proved true to the claims of the shippers as to grades resulted in the decision that doing our job right in every packing house was fundamental. U. S. Standards were again approved. The vague standard known as a commercial grade was voted unanimously as unsound.

Harold C. Crews, who has been employed to take charge of standardizing pack and grade, presented a complete report of the personnel necessary, the plans to be followed, the form necessary and a budget of expenses. This was carefully discussed in an effort to save expenses without reducing efficiency, but was finally unanimously approved as a sound program to follow.

Specific plans as to furnishing the Clearing House with information daily and weekly on volume of supplies and prices realized were considered. It was a complex problem. Speed is essential as well as accuracy. A mass of information of unclassified detail could be a jumble of facts, but worthless, if not made immediately usable for the shipping members. Again here, unnecessary expense on the part of the Clearing House was carefully avoided. The shippers will be required to classify their information as to grade and variety and determine their own averages in the summaries required daily by wire and mail. Forms will be offered to all shipper-members for their approval before being struck off.

The necessity of deciding on the Clearing House manager was recognized, but in the absence of Mr. Commander, and also in the belief that the entire duties of the Clearing House should be clearly and specifically visualized before it would be possible to determine the type of man required, it was decided best to postpone action.

Many names of able men are being considered. The responsibility of a wise selection rests primarily on the Operating Committee. They must determine how much time they can in

justice to their own business give in periods of stress to the operation of the Clearing House. It is also their duty to reach if possible unanimous approval of the man for the job. If this is done the Directors are relieved from this responsibility, except as to formal ratification; if not, the responsibility falls on the Directors.

An accurate crop estimate, based upon more thorough methods than shippers have followed in the past was fully discussed. Acting on the recommendations of the Operating Committee the Clearing House will be immediately appointing three shipper-representatives in each county to assemble a report as of September 1st, on the Florida citrus crop. The Operating Committee fully recognize that it will be impossible to attempt to wisely distribute the packing and shipping of the crop from week to week without having a reasonably accurate estimate of the crop to be moved. The Clearing House will of course also work closely with the Government Statistician, H. A. Marks.

CITRUS APHIDS

Continued from page 4

of danger from aphids. In other words it makes no difference what your neighbor does, you will get the full benefit of the cleanup you may give your grove during the winter. If the grower will do this carefully and thoroly, I feel confident that during ordinary seasons, on round oranges at least, he will be able to get his spring flush of growth, including blossoms and fruit, thru with very little damage from aphids. In the case of tangerines, which put out several weeks later than oranges, it may be necessary to use insecticides. By the use of a power duster to throw the nicotine sulphate lime dust on the trees on a quiet night, one can get very effective control. The kill will approach 100%, but it is essential that there be little wind, altho a gentle breeze would be permissible; much more so in this case than in spot dusting with a hand duster; as, when dusting the entire grove, there is a gentle drift of the dust thru the entire grove and the aphids would still be exposed a full minute to the in-

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The Citrus Industry

with which is merged The Citrus Leaf

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415 Stovall-Nelson Building
Tampa, Florida

Telephone _____ 4819

S. L. FRISBIE, Editor and Manager

FRANK KAY ANDERSON _____ Assistant Manager

A. G. MANN _____ Production Manager

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NEW YORK OFFICE
350 West 55th Street
Phone Columbus 8246
FRED SHERWOOD CLARK, Manager

CHICAGO OFFICE
28 EAST JACKSON BOULEVARD
Telephone Harrison 1233
William Robert Shannon, Manager

GROVE CALENDAR FOR SEPTEMBER

Timely Suggestions for Grove Work During the Present Month

Give last fertilization and cultivation to young, non-bearing groves and nursery stock.

This is the best month for applying the clean-up spray (oil-emulsion) for white fly and scale.

Mow cover crop (cow peas or beggar weed) by middle of month to avoid pumpkin bugs.

Get your ground in shape for the planting of new groves next winter.

Rust mites are extremely busy this fall. Take steps NOW to destroy them and produce more BRIGHT fruit.

CLEARING HOUSE ESTABLISHED

The Florida Citrus Growers Clearing House Association is at last an established fact. Save for the selection of a general manager, the organization is now complete, and this feature of the organization is expected soon to be accomplished. While no announcement has been made as to the probable identity of the prospective active head of the Clearing House, it is known

that at least one man of national reputation is being seriously considered by those with whom the selection of a manager rests. It may be accepted as a certainty that the men charged with this important duty will unite upon the very best man available for this position.

In addition to the original seven district directors previously chosen by the Committee of Fifty, four directors from the state at large have been named since the last issue of The Citrus Industry. These additional directors are: J. C. Chase, R. B. Woolfolk and John A. Snively, prominent growers and shippers, and J. A. Griffin, president of the Exchange National Bank of Tampa, and one of the leading bankers of the state and the South. The addition to these men to the board of directors, with the seven strong men originally named by the Committee of Fifty, makes this body one of outstanding strength and efficiency.

The board of directors is supplemented by an operating committee which will have actual charge of the operations of the Clearing House, and this committee is made up of some of the leading citrus shippers of the state, a fact which augurs well for the detail operation of the Clearing House under their direction.

From the inception of the movement, The Citrus Industry has believed that the Growers Clearing House as organized holds out the greatest promise of benefit for the industry as a whole of any movement ever inaugurated in the state. Properly managed, and the personnel of the directorate insures that it will be properly managed, the Clearing House will be able to accomplish for the industry many of those things which all have recognized as needful, but which heretofore, with no central organization, were impossible of achievement.

Standardization of grade and pack, an aggressive commodity advertising campaign, and control of distribution will be among the major and immediate aims of the Clearing House. The solution of these problems will mean much to the industry and should result in enhanced value of the crop and more money for the grower.

The Citrus Industry sees but one danger to the success of the movement, and it hopes that this danger may be avoided. The one danger, as we see it, is that some growers may expect too much of the new organization—and expect it too soon. It will require time to get this elaborate piece of machinery in motion and to achieve the maximum of efficiency in operation. If growers will exercise patience and not demand the impossible of the officers and manager before the organization has time to function properly, the Clearing House will be a success. But the officers and manager are going to need the hearty, united and unquestioning support of growers until such time as their plans can be put into operation and their activities are given time to bring forth fruit.

The Citrus Industry sees in the Clearing House project the greatest factor for good the industry in Florida has known. It looks forward to the success of the project in just such measure as the Clearing House has the confidence and support of the growers.

CROP ESTIMATES

As usual, diverse opinions are held in regard to the size of the citrus crop just beginning to mature. While few growers or shippers have given out public statements of their views, such views, privately expressed, cover a wide range.

C. W. (Joe) Lyons, head of the Lyons Fertilizer Company of Tampa, is one of the first to make public his estimate of the crop. Mr. Lyons estimates the commercial crop for shipment out of the state at roughly eighteen million boxes. This estimate is generally accepted as being conservative. Some private estimates are higher, some lower. It may be said for Mr. Lyons, however, that for many years past his preliminary estimates have been very close to the actual figures of shipments returned at the close of the shipping season, and for this reason, his figures have come to be accepted as pretty nearly accurate.

In addition to estimating the crop, Mr. Lyons has this year gone slightly further, with the prediction that good prices will prevail and that, with the Clearing House in operation, the crop should bring in the neighborhood of \$65,000,000.

The Citrus Industry will take much interest in comparing Mr. Lyons' estimate with the final returns at the close of the season, with the view of ascertaining if his past record as a wise and true prophet holds good this year.

THOSE REVISED RATES

J. Curtis Robinson, secretary-manager of the Growers and Shippers League of Florida, estimates that Florida growers and shippers stand to gain one million dollars in savings as a result of the decision in the Line Haul Rate case, recently handed down by the Interstate Commerce Commission.

Since this estimate was issued by Mr. Robinson, certain western railroads sought to delay the operation of the new rates by an appeal to the Commission for a rehearing on certain schedules. It now appears, however, that the rates will become effective in time to affect the major portion of the crop this season, and if Mr. Robinson's estimate is correct, Florida's crop should net the growers a clear million dollars more than would have been the case under the old rates.

The Line Haul rate case has been before the Commission for a number of years, and while the rates as adjusted by the Commission do not give the Florida shippers all that they asked or hoped for, the saving of one million dollars in freight rates is accepted as a distinct achievement on the part of the Growers and Shippers League.

Florida citrus growers do not often need frost protection for their groves—but when they do need it, they need it badly. The wise grower makes the provision against the time of need.

The Isle of Pines grapefruit crop is particularly early this year.

SOUTH AFRICAN CITRUS EXPERT HERE

H. Clark Powell, a noted citrus expert, formerly of California, but now engaged in active operations in the South African citrus field, has been a recent visitor to Florida, studying conditions here with a view to the adaptation of Florida methods to South African conditions.

Having completed his survey of the Florida field, Mr. Powell left for New York and will later visit England and then proceed to Spain, Sierra Leone, Nigeria and other citrus fields before returning to South Africa to put into effect such methods from other fields as he finds adaptable to South African conditions.

ESSENTIAL

M. L. Corey, who had charge of the campaign for membership in the Florida Citrus Growers Clearing House Association, is responsible for this:

"Co-operative marketing is not a substitute for membership in the Florida Citrus Growers and stimulate these essential characteristics. Sweat is still the most important farm cosmetic."

And he might have added that a judicious admixture of fertilizers and insecticides with the sweat will be found highly advisable.

The Citrus Industry is pleased to note that publications in California, Texas and Florida are taking kindly to the idea so frequently expressed in this magazine, that the time is coming when a national organization of citrus interests will be not only advisable, but imperative.

Not how much, but how good, should be the ideal of every citrus grower.

Eternal vigilance is the price of "bright" fruit.

SCHNARR & CO. HAVE SECOND FIRE

The second fire within the space of a few months, damaged the sulphur plant of J. Schnarr & Co., insecticide manufacturers at Orlando, Florida, on the morning of August 15.

Although the fire did little damage to the building and was confined to the chemical, the fire department was forced to fight it for an hour before the flames were finally extinguished. Water had little effect on the flame and the sulphur had to be washed out of the plant and allowed to burn out before the fire could be extinguished.

The sulphur, which is used in large quantities by the company in making citrus insecticides, is very inflammable. Small fires occur in the plant among this material frequently, it was said, but are usually extinguished without the help of the fire department.

An explosion preceded the fire, employees of the plant said. No reason for this could be found, but it is thought likely it was caused by spontaneous combustion.

On May 1 the Schnarr plant caught fire in a similar manner and suffered a loss estimated at \$30,000. Several buildings were destroyed, and have since been replaced.

IMPRESSIONS

By The Impressionist

Apparently Dr. Lewis and Joe Jenkins are going about the business of establishing packing houses for United Florida Growers Inc. systematically. Alturas, Arcadia, Avon Park would indicate that. But then they've bought the Exchange house at Haines City and will take possession as soon as the Haines City Citrus Growers Association completes its new house there and moves into it.

Chester C. Fosgate, after having given his attention to the retail distribution of fruits and vegetables in Orlando, will be back in the citrus game in earnest this season. He will operate his big packing house at Forest City for his own account, except United Florida Growers Inc. for for one unit which he has leased to handling their business in that vicinity.

Experts pronounce the burning of Chase & Co.'s packing house at Ocoee, and the attempted burning of the Richardson & Marsh packing house at the same point, the work of a pyromaniac. Maybe it's some poor grower whose mind has become disordered through reading and rereading the Interstate Commerce Commission's decision in the Line Haul case, and attempting to understand what it says.

Dropped in to see C. C. Commander, general manager of the Florida Citrus Exchange, at Tampa, only to find he was at that moment due to be landing at Liverpool. Just a jog across and back, we learned, to look after export affairs.

Did see General A. H. Blanding, production manager of the Exchange, who was just back from California. Our talk was mostly of the State University at Gainesville, in which he has great interest both as an alumnus and as a second term-member of the State Board of Control. However, we got from him enough to confirm our impression from several sources that the coming California orange crop will be very large.

We are reminded that last month in these columns we mentioned a fel-

low in Oregon who wrote to a Florida chamber of commerce concerning "Scaldsweet" oranges. However, our careful linotyper couldn't believe we meant it, and by changing the "c" to an "e" turned the word back to "Sealdsweet" and rather lost the point.

H. Grady Zellner, the well Lakelandite, out and about again after his severe illness, and really looking well. The Zellner family certainly came in for their share of sickness this Spring and Summer; and are to be congratulated upon their recoveries.

About the time this appears in print Joshua C. Chase is due back in Florida after a summer spent in touring South America. We'll be interested in learning what he picked up of citrus interest. And whether or not he had contact with Professor P. H. Rolfs, who for the past few years has been located at "Vicosia, E. F. Leopoldina, Minas Geraes, Brazil." Our old friend Professor Rolfs is in charge of citrus experimental work for the Brazilian government. Whether he has "made a name" for himself there or not, he has certainly achieved a wonderful address for his mail.

We have previously nominated C. W. (Joe) Lyons of Tampa as the champion luncheon buyer in citrus circles. However, unless a champion is extraordinarily good, championship laurels are apt to shift to another brow. Which is to say, Joe, that you'd do well to be stirring your stumps, for Archie M. Pratt of Chase & Co. rather seems to us to be after your crown. Of course, personally we aim to be unbiased, but we are compelled to score the hits as they come. Archie's style is good, too. He doesn't holler his head off if a fellow orders an expensive dessert.

H. Guy Nickerson the well known Polk County grower of Tampa, or the well known Tampa grower of Polk County, as you will have it, is certainly taking on flesh in his old age. Today he has a really handsome figger to set off the imported shirts

which feature his costuming. From time to time persons have inquired of us what that "H." at the beginning of his name really stands for. We do not know. However, we do not believe it is "Heluva," as we have understood J. T. (Jim) Swann, president of the Tampa Board of Trade, to insinuate. Our impression is that the Swann person's nose may be a bit out of joint as far as Guy is concerned. Bit of jealousy, so to speak, as to who excels in setting shirt styles.

In the wake of the August hurricane we find that salt spray is adding to the score of injury to citrus trees in the lower Indian River country. Damage estimates which at first impressed us as excessive are now fully justified as the passage of time reveals "burning" by salt spray driven before the hurricane winds.

Same thing happened seven or eight years ago round about Dunedin, in Pinellas County, and some of those groves were rather slow in making full recovery, if our memory serves correctly.

Even so, our impression is that we have a good crop left on the trees here in Florida. It is not our habit to "estimate," but we are willing to lay a small wager against many "estimators." In June we collected eight or seventeen coca-colas on bets with as many marketing sharks when shipments went above the maximum figures they had set. Our system is simple. No crop is as big as pessimists predict, nor so small as the optimists figure. That is, based upon commercial shipments from the state. In short crop years growers will "dig out of the woods" thousands of boxes under the stimulus of high market prices, to increase crop figures beyond what the estimators figure. Contrariwise, in big crop years thousands of boxes will be allowed to fall to the ground, thus reducing the figures of commercial shipments below what many sincerely anticipate.

The hen that molts in August needs to be introduced to the chopping block and the axe.

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc.



Edited by The Growers Service Department

VOLUME 2—No. 10

ORLANDO, FLORIDA, SEPTEMBER 1, 1928

PAGE 1

AMERICA'S BIGGEST BUSINESS IS FARMING

The importance to the United States of its agricultural and horticultural output is difficult for the average city dweller to grasp. It is the feeling in agricultural circles that too often those engaged in manufacturing and similar pursuits are indifferent to the needs of the farming population, failing to realize how vital to national prosperity is the prosperity of the farmers.

Statistical comparisons of abstract figures more often than not fail to impress the mind with any degree of accuracy. Here, however, are some comparatives in concrete form which give some idea of what agriculture and horticulture in the United States really means.

We are a nation of fruit eaters. Everyone knows that and comments upon it, yet how many persons have any realization that the average value of the annual production in this country of oranges, grapefruit, apples and peaches when combined exceeds the value of the average annual production of iron ore by more than two hundred million dollars.

Something which might vitally affect the prosperity of America's great iron industry would instantly command public attention because of that fact; but the even more vital prosperity of the growers of these four fruits apparently is of minor concern because so little is understood of its importance.

Then the humble hen is deserving of very serious consideration; and the little busy bees are entitled to thought from those who apparently believe that eggs come in pasteboard cartons and honey in glass jars. Mr. and Mrs. Cityman and their children would gasp with alarm at anything which threatened the welfare of the great petroleum industry of this country; but they would simply look incredulous if told that the annual farm output of poultry, eggs

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LAKE WALES JOINING RANKS OF BLUE GOOSE

Lake Wales, center of very large citrus production on The Ridge in the eastern section of Polk County is the latest place to join the ranks of the American Fruit Growers Inc. in Florida. Operations there will be in full swing with the opening of the coming season's shipping in that section.

Ray Urie as president, and Lon A. Martin as secretary and treasurer, head the new Lake Wales organization, incorporated as Lake Wales Fruit Packers Inc. These together with W. A. Branning and W. R. Martin constitute the board of directors.

A packing house building 75 by 110 feet has been completed close to the center of town; and installation of machinery of modern type which will give an initial daily capacity of four carloads is about completed.

A considerable number of prominent growers of the locality will look to the new organization for the handling of their crops; and the management promises to set a grade and pack which will enable Lake Wales fruit to obtain its fullest value in the markets. Selling will be exclusively in the hands of the American Fruit Growers Inc.; and Salesmanager C. N. Williams and his associates of the Orlando Division have undertaken every possible provision in advance to assure a successful reception for the first season's pack of the new house.

Lake Wales is truly one of the "wonder towns" of Florida such as story writers dream about. Fifteen years ago there was but one house on a lake in the midst of a great pine forest where now stands the very modern and attractive city of Lake Wales bounded about by thousands of acres of productive citrus groves, which give a livelihood to several thousands of prosperous people. Now, through the instrumentality of Lake Wales Fruit Packers Inc., world markets for Lake Wales fruit are opened with all the advantages of the

CLEARING HOUSE IS GREAT FORWARD STEP

Perhaps the strongest endorsement yet to be given to the Florida Citrus Growers Clearing House Association has come from R. B. Woolfolk, chairman of the board of directors, and vice-president of the American Fruit Growers Inc. Mr. Woolfolk has had a lifetime of successful experience in the marketing of fruits and vegetables, and is a figure of national prominence in the produce trade. Particularly significant in connection with his approval of the Florida Clearing House is the fact that he was one of the originators a number of years ago of what the United States Department of Agriculture designates as the first or parent Clearing House in the distribution and sale of perishable foodstuffs, that in connection with the Imperial Valley cantaloupe industry. In addition, the American Fruit Growers Inc. is a member in good standing of other clearing houses now operating in other fruit and vegetable producing sections.

Mr. Woolfolk, who for years has been accustomed to spend his winters in Florida, for some months has been actively in charge of the operations of the American Fruit Growers Inc. in this state, in the absence of Frank L. Skelly, Florida citrus manager, who is just now recuperating from a very long and serious illness. Mr. Woolfolk has been in intimate touch with every phase of the development and organization of the Florida Citrus Clearing House Association. He was recently named one of the directors of the Clearing House for the state at large, and is a member of the executive committee of the board of directors. Concerning the new joint undertaking of Florida citrus growers and shippers, he said:

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Blue Goose trademark and the nearly two hundred selling agencies of the American Fruit Growers Inc.

BLUE GOOSE NEWS

OFFICIAL publication of the American Fruit Growers Inc., Growers Service Department, published the first of each month in the interest of the citrus growers of the state of Florida.

EDITORIAL ROOMS
502 Yowell-Drew Building
ORLANDO, FLORIDA



FREIGHT RATES

Even though the saving in freight charges on the coming citrus crop, based on the assumption that it will be distributed over practically the same area as last season's crop, is variously estimated to be from \$600,000 to upward of a million dollars, the decision of the Interstate Commerce Commission in the Line Haul case cannot be hailed with delight by well posted Florida growers and shippers.

This annual saving is, indeed, sufficient to more than repay all the expense and effort which has gone into more than four years of work by the Growers and Shippers League of Florida in prosecuting the matter. The American Fruit Growers Inc., which has strongly sustained that effort, to the extent that it has shouldered its portion of these expenses itself and did not charge them back to its growers, sees in these savings handsome and continuing dividends upon its investment. The effort has been well worth while.

However, the decision itself, highly involved and complicated as it is in phraseology, is a disappointing answer to the plea of Florida for recognition of its rights to wider markets, even when analyzed from the most optimistic angle.

What that decision may yield in savings in actual application throughout a season's shipping, in our humble opinion, simply shows what can be done by united effort in traffic re-

lations. It shows something of what the Florida industry has lost in previous years through failure to get together and stick together in such matters.

It should be regarded as a beginning, not as the end. The Growers and Shippers League should not only be held together, but its efforts should be redoubled. Further, it should command the allegiance and active support of each and every grower and shipper in the state.

HANDICAPPED

The position of the Orlando Division of the AFG recently has been most unusual. With such well known figures in the Florida citrus world as Frank L. Skelly, A. B. Michael and C. R. Pilkington missing from its line-up due to serious illnesses of varying causes, this business has been handicapped quite seriously.

The simultaneous absence of all three of these important men has been felt very keenly. It is indeed a compliment to the method of organization of this business that it has been able to go ahead aggressively under such circumstances.

Mention of this fact has not been made in these columns until now, when we are at last able to reassure the hundreds of friends of each of these gentlemen in response to their anxious inquiries that after their long and very serious illnesses they are recuperating most satisfactorily; and before long we in Florida expect to welcome them back to their duties.

It is a singular coincidence that their illnesses should have come at the same time, though entirely unrelated in their causation. It is a happy coincidence, indeed, that they are simultaneously recovering.

We who have carried on in their absence appreciate greatly the indulgence of those who have dealt with these offices during this period. If, as is the case, these leaders will return to find a greater volume of tonnage for next season signed up than at any similar time in the history of the Orlando Division, the credit must go to the satisfied grower-patrons of this organization. They are wholly responsible for this very gratifying expansion of business under such unusual circumstances.

The polls are places where you stand in line to decide who will spend your money.—Cincinnati Cynic.

AMERICA'S BIGGEST BUSINESS IS FARMING

Continued from page 1

and honey in the United States exceeds the average yearly production of all of the oil wells of the United States in value by nearly a quarter of a billion dollars. Yet such is the case.

Domestic animals on the farms, horses, cows, hogs and sheep, play a big part too. Our great American automobile industry is something of which we as a nation are justly proud, yet how many of us are sufficiently posted to know that the live stock supplied by the farms of this country in one year exceeds in average value the entire annual output of automobiles and farm implements combined by something like three hundred and fifty millions of dollars.

When we come to what are known as the staple grains, corn and wheat, it is to find that the yearly crop of these exceeds the total yearly earnings of all of the railroads of the United States by approximately three-quarters of a billion dollars.

Then there are a lot of what city dwellers might call odds and ends on the farms, such as hay, oats, rye, potatoes etc. etc. Combined they are of great significance in our national economic adjustment, for the simple reason that in an average year they have a greater value than the yearly output of all the country's coal and other mines, if we except the iron mines first mentioned.

The most important business interest of these United States, by any method of figuring, is farming. After having largely left farming to shift for itself while advertising to build up and foster almost every other form of national business, it seems that just now the importance of the welfare of the farming population is beginning to dawn upon the business leaders of the nation.

CLEARING HOUSE IS GREAT FORWARD STEP

Continued from page 1

"Florida citrus growers should be gratified at the very rapid progress which is being made in the organization of the Clearing House. It is being gotten ready for business very rapidly; and the various details of the actual working plan are fast being filled in.

"To my mind a most significant feature is the unanimity of spirit and purpose which prevades practically

every phase of the early work. A splendid spirit of give and take has been manifest in every meeting of the directors and officers; and attention seemingly is focused entirely upon developing the best and most practical working organization for the benefit of the industry as a whole. In doing this there are at times, very naturally, some widely divergent opinions manifest. The spirit which actuates the various individuals in composing differences of opinion is wonderfully good. While discussions upon some subjects have been lengthy, it is extremely significant that in every instance the final verdict has been a unanimous expression from all the individuals participating.

"Nothing could more clearly indicate the sincerity and purpose of all the participants to devote their efforts to the common good of the industry. Fortunately, in addition to the kindly and guiding offices of officers of the U. S. Department of Agriculture, we have the record of experiences of a number of successful, and unsuccessful, Clearing House undertakings in other producing districts to suggest the most practical and proven lines upon which the Florida Clearing House may be laid in order to assure a maximum of beneficial results with a minimum of expenditure and operating personnel. While designed especially to be of greatest service to the Florida citrus industry this Clearing House for Florida is as far as possible based upon activities of proven feasibility.

"In opening the way for standardization of grade and pack, I regard the inspection activities of the Clearing House as now outlined to be administered by Mr. Harold Crews and assistants as signifying the biggest single step in advance for the Florida industry in many years. This promises to be as effective as any inspection service of which I have knowledge anywhere, and yet the cost will be quite moderate when the comprehensiveness of the service is considered.

"The Clearing House has three great and immediate undertakings ahead of it, standardization, advertising and distribution. Standardization must come first, then advertising largely will be enabled to make effective and widespread distribution easy of accomplishment.

"Every phase of the undertaking is being carried forward as rapidly as is consistent with good business judg-

ment; and officers and directors are harmoniously giving their best efforts to setting up very carefully a simplified and effective business machine capable of functioning to the best advantage of the entire Florida industry.

"To my mind very few persons are really alive to Florida's wonderful productive possibilities. As I see it, Florida is right now just at the beginning of a development which in my opinion is due to be almost marvelous. One thing which should contribute very strongly to Florida's future and early advancement is putting this important business of citrus growing and marketing upon a stable basis. This the Florida Citrus Growers Clearing House Association promises to be able to accomplish fairly quickly. That is why our organization is so strongly committed to it; and why I do not hesitate to endorse the movement and to urge all growers who have not yet joined to do so. We should be able to make this joint effort an almost unanimous one, in which practically every grower, big, or little will want to be included as an active participant.

NORMAL APPLE CROP IS GOVERNMENT FORECAST

The Aug. 1 apple crop forecast, issued by the U. S. Dep't of Agriculture, indicates that the commercial crop for 1928 will be 3,277,000 bbls., which is 7,377,000 bbls. greater than last year, but about 6,000,000 bbls. less than the bumper crop of 1926. The agricultural yield is figured at 178,970,000 bu., in comparison with a total yield in 1927 of 123,455,000 bu.

Judging by past estimates of the Dept. of Agriculture, the forecast is approximately correct. The Aug. 1 crop in 1927 was 26,179,000 bbls. According to the Government report, which is subject to later revision, the total commercial crop in 1927 was 25,900,000 bbls., a discrepancy of only 279,000 bbls., a relatively small estimate for the total commercial amount, when the scattered nature of the apple industry is taken into consideration.

The Department figures that the crop is relatively normal, based on a 10-year average, but will be below the five-year average, which was brought up considerably by the huge 1926 crop. Declines in the Northwest during the month of July formed

the lone setback to countrywide improvement. These losses ranged as far as Indiana in some cases, but were offset by gains elsewhere. Condition of the fruit is given as 59.4 per cent normal on Aug. 1, as compared with 62.9 on July 1 and 41.8 a year ago this month. The 10-year normalcy rating is 57.1.

The forecast rates the 1928 apple crop as slightly more than the apple crop of 1927.

BAGGS IN EUROPE *Baggs, William H.* STUDYING MARKETS

William H. Baggs, executive vice-president of the American Fruit Growers Inc. is at present upon a trip around the principal European fruit markets. Mr. Baggs will be in Europe for some time, in contact with AFG distributors at various points seeking to further strengthen the established distribution of Blue Goose and AFG fruits there.

Even before the American Fruit Growers Inc. was formed as a national organization some of the concerns which were consolidated in its formation had developed highly important export businesses. It was therefore only natural that the American Fruit Growers Inc. should lead in the establishment of export markets for Florida fruit, which for several years now have been an important phase of Florida operations.

The Blue Goose trademark holds a significant place with the fruit trade in the main foreign markets; and effort will now be directed toward carrying distribution further out into smaller centers.

WILLIAMS ON ANNUAL *Williams, C. N.* TRIP AROUND MARKETS

C. N. Williams, salesmanager of the Orlando Division of the American Fruit Growers Inc. is at this time drawing toward a conclusion his annual trip to the country's principal citrus markets.

At the conclusion of the Georgia peach season, Mr. Williams went to Pittsburgh to attend the Apple convention, the great mid-summer gathering of fruit and vegetable men from all sections of the country. Following the Apple Convention, Mr. Williams returned to Orlando for a few days and then departed on his circle of the principal citrus distributing centers.

He is now expected to return shortly, in order to be in readiness for the early Florida citrus movement.

UNIFORMLY



THE BEST

Preference

Jobbers want what the dealers want.

Dealers want what the public wants.

The public wants that which it knows about, and concerning which it has come to have confidence in satisfaction and dependability.

The public wants, and demands, Blue Goose oranges and grapefruit. It knows what that unforgettable Blue Goose signifies.

Largely it recalls that growers of Blue Goose fruits were the first to show confidence in their products by trademarking each individual fruit. Confidence begets confidence.

The passage of years has made the matter of looking for that trademark a habit. Similarly dealers have become habituated to ordering Blue Goose fruits to take care of their customers' demands; and jobbers too have the habit.

That is what constitutes Preference, which is a matter of importance, and profit, to growers whose fruit bears the Blue Goose trademark.

American Fruit Growers Inc.

Orlando, Florida

DEPENDABLE



QUALITY

FREIGHT RATE DECISION MAY SAVE GROWERS ONE MILLION DOLLARS

Continued from page 8

tail all of the changes which will be made and inasmuch as a large percentage of the citrus crop originates in Polk County and as Lake Wales was used throughout the Hearing as a representative shipping point the present and future rates from Lake Wales to representative destinations are shown hereunder:

The proposed rates are in cents per box of 90 pounds. The new minimum is 360 boxes. By multiplying the difference between present and proposed rates by 360 the decrease or increase per car is obtained. I will name the present rates first and the proposed rates second.

Lake Wales to Atlanta, present rate 67½c, proposed rate 62c, Birmingham 74½, 68, Louisville 90, 85, Nashville 84½, 78, New Orleans 84½, 76, Chattanooga 74½, 70, Richmond 81½, 79, Baltimore 92, 88, Washington 92, 86, Philadelphia 93, 92, Buffalo 106½, 105, Boston 104, 105, New York 96, 95, Cincinnati 90, 86, St. Louis 102, 93, Chicago 106½, 99, Detroit 106½, 100, Cleveland 106½, 99, Omaha 126, 111, Sioux Falls, S.D. 132, 117, Eau Claire, Wis. 126, 113, St. Paul 126, 116, Kansas City 120, 104, St. Joseph 120, 106, Albert Lea, Minn. 126, 113, Des Moines 126, 106, Sioux City 126, 115, Waterloo, Iowa 126, 110, Atchison, Kansas 120, 106, Leavenworth, Kansas 120, 106, Wichita 137½, 117, Wellington 141, 117, Ardmore, Oklahoma 133½, 111, Enid, Oklahoma 141, 117, McAlester, Okla. 133½, 107, Dallas, Texas 133½, 107.

To Seattle, Washington and other far western points on grapefruit, present rate per box \$1.84, proposed \$1.62.

I am very much disappointed in the Decision of the Commission. C. R. Marshall of Washington, D. C., the Counsel for the League, is absent from the States and no decision has therefore been reached by the League as to what appeal, if any, shall be made to the Commission for an amended decision. A conference was to have been held this week in Orlando between the State Railroad Commission and the Traffic Committee of the League to discuss the various features of the Decision, but this had to be temporarily postponed.

While the Decision will give our growers and shippers an aggregate reduction of approximately \$1,000,000.00, annually, it does not afford the relief for which we had hoped

THE CITRUS INDUSTRY

and which we believed we were justified by the evidence in expecting. Formerly our shipping points were grouped into 63 groups of origin. We asked that the entire state be placed in one group of origin similar to California. The Examiner who heard our evidence recommended five groups. By placing the future rates on a mileage basis north and south of Jacksonville it appears to me there will be 200 groups of origin in the future. There are various other very objectionable features in connection with the decision which space forbids outlining in detail. The reductions which have been secured is a result of four years effort on the part of the League which has been so loyally supported by the leading shippers of

the State. The dues paid by these leading shippers for the support of the League during the past four years made possible the presentation of this case and the present Decision for relief to the extent of \$1,000,000.00, annually. It is significant, however, that the benefit in reduction in rates accrues to each grower and shipper in the State proportionate to the tonnage shipped regardless of whether or not they made any contribution to the League's support.

The League is indebted to the State Railroad Commission and its able force for their assistance in presenting our Case to the Commission.

Seventeen



Best
OF MATERIALS
MAKE IT BEST
FOR CITRUS
and ALL TRUCK CROPS

Chemical analysis is necessary for chemical control in the manufacture and mixing of fertilizers, but the analysis on the bag is no guarantee of the quality of plant food it contains—it only tells the quantity.

The manufacturer's name on the bag is your best guarantee of quality and on every bag of NACO BRAND Fertilizers is a name whose high quality standard insures that the plant food contained in the mixture is derived from the best of materials, is properly mixed and blended and in perfect mechanical condition.

Our new Price List No. 21 is just off the press. It describes those mixtures that have been used for years by many of the most successful truck and citrus growers of Florida. It tells you about NitraPo and genuine Peruvian Guano—write for it!



FERTILIZERS
THAT CONTAIN
LIBERAL QUANTITIES
OF GENUINE
PERUVIAN GUANO

NITRATE  **AGENCIES**

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JACKSONVILLE
FLORIDA

"Please Say You Saw it In The Citrus Industry"

And His Neighbor Sold Out for a Rusty Shot Gun

By W. S. Andrews in Farm and Fireside

For more than fifty years Hans Lage has lived and farmed in the famous Hood River Valley of Oregon. Coming to the valley as a pioneer before its possibilities as an apple region were even dreamed of, he hewed a homestead out of the forest. Now, at fourscore years, he takes life easy, enjoying the prosperity and comforts the years have brought, viewing contentedly the beauties of this noted mountain notch.

Few men are as happy with their lot as this veteran fruit grower, and few have as much to be thankful for. His means are ample for all his needs, even after giving his six children a start, though he is not rich as wealth is rated in cities. More luxurious farm homes I have seen also, though few can boast as beautiful a setting.—Mt. Hood, snow-capped and stern, stands guard to the south, while more distant to the north Mt. Adams is another snow-clad sentinel. An air of peace and plenty hovers over the Lage farm, an atmosphere difficult to describe, which derives no doubt from the spirit of the people living there and is enhanced by the richness and spectacular beauty of the valley itself.

Hans Lage did not warm up at first. But after I had convinced him that I had nothing to sell he became cordial and talked freely with his rich German accent which the years have never taken away. With proper pride my host took me over the farm, showed me the orchards, the apple grader, the fine barns and the modern dairy equipment. He spoke as we walked about of the changes in farming methods and equipment since he started out and remarked how much easier and better one can farm now than was possible when he came to Hood River from Iowa back in 1876.

He chuckled too as he pointed out a near-by tract of 80 acres which had belonged to an early settler who had come in about the same time Hans Lage settled there. But after a time this other home-steader had grown restless and traded his 80-acre farm for a shotgun. Today the railroad passes this place and it has warehouses and a store on it. Hans Lage told me it was probably worth \$200,000. And once it was traded for a

rusty old fowling piece!

There was even a time when Hans Lage himself was tempted to sell his homestead for the \$900 offered and to move back to Iowa. He admits that he probably would have sold out had not Mrs. Lage persuaded him to stay.

That was before it had been learned that Hood River was destined to become one of the finest apple regions in the whole United States. What Hans Lage's 145 acres are worth today would be hard to say. They are not for sale but probably would

Behind every bag of Gulf BRAND FERTILIZERS



BACK of every sack of Gulf Brand Fertilizers stand 25 years of thoughtful study, practical test and painstaking effort to give Florida Growers and Farmers fertilizers specially suited to Florida soils and Florida conditions—fertilizers, which intelligently applied, will tend to produce crops of better quality and greater quantity.

MANY of our customers during the past quarter of a century have found the sound advice and practical suggestions given by Gulf Field Service men very helpful in their cultivation problems.

Write for "Timely Topics" and "25 Years of Proof"—Free on request

THE GULF FERTILIZER COMPANY
TAMPA, FLORIDA

September, 1928

bring \$500 an acre at a forced sale, maybe a good deal more.

Hans Lage was born in the Holstein country in Germany, March 18, 1847. At the age of twenty-one he came to America and settled near Davenport, Iowa, where he worked on farms for eight years. He had heard much of the rich farming opportunities in the Pacific Northwest. Having saved a small stake he started west with his young wife, three small children and his father-in-law. He had intended to settle in the state of Washington.

The trip was made by the old Union Pacific emigrant train to Sacramento, thence by side-wheel steamer to Portland, then but a village. Here the little band paused to look around. The actual site of his future was on a hunting party, which was farm was discovered while Hans Lage held up by a severe snow storm. Hood River Valley caught his fancy and he determined to settle there. It was in the year 1876, at the age of twenty-nine that he bought a homestead of 160 acres from Milton Neal for the sum of \$300. This included all rights and improvements, consisting of a four-room shanty and a small barn. At that time there were eight settlers on the east side of the valley and twelve on the west side. Several of the west-side settlers strongly advised against this purchase. They thought the west side was better. When the apple business developed, Mr. Lage's judgment was proved to be the wiser in choosing the east side in which to make his home. Practically all of the original east-side settlers sold out before the really good times came. Hans Lage is the only one left today.

The only fruit trees on the place when Mr. Lage came were an apple and a Bartlett pear tree. These are still healthy and bearing, the Bartlett yielding 30 boxes of fruit in 1926. The small orchard set out in 1880 has grown to 30 acres, which in 1926 yielded a harvest of 18,000 boxes of fine Hood River fruit, than which there is none better in the Pacific Northwest. The Lages grade, pick and sell their own fruit crop.

But the real beginning of the fruit industry in Hood River Valley was in 1881 when the first meeting of the East Side Irrigation Company was held in Hans Lage's barn. This section does not require as heavy irrigation as Wenatchee or the Yakima project but it does need water to make a good fruit crop. The first fruit growers' meeting, the basis of

THE CITRUS INDUSTRY

the present cooperative, was held in the fall of 1888.

Hans Lake, wise old German, has never risked all his eggs in one basket. Hence the medium-sized acreage in apples. There is a good herd of purebred Jerseys on the place, and various crops are grown. He was much pleased to show me as good a piece of corn as you would see on many farms in Iowa or Illinois. This in the foothills of the snowy Cascade Mountains!

Sixteen years ago, at the age of sixty-four, Hans Lage decided he had had enough and that he "would give the young folks a chance." So he retired. But he still is active around the place for a man of his years. His garden showed the results of his work and skill. There were cabbages as big as field pumpkins and even heavier. There are flowers and shrubbery around the house.

Hans Lage has six children, three sons and three daughters, of whom two sons are farming in the valley. When asked how many grandchildren he replied:

"I'd have to have a pencil and paper to figure them up. But I guess there are about eleven grandchildren and seven great-grandchildren."

A real old patriarch! There were twenty-three that were close of kin in a group picture taken at a family reunion a year or so ago.

Nineteen


That Mr. Lage is liked by his neighbors is shown "by the fact that Continued on page 22

Fruit Packing Machinery and Supplies

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European Plan, Fireproof 300 Rooms With Baths

THE CENTER OF TAMPA

"Please Say You Saw It In The Citrus Industry"

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed.

Fall Grove Work

The month of September ushers in fall work in citrus groves throughout the State and it is a common practice at this time of the year to emphasize briefly the various things which should receive attention. No such reminders can take the place of an actual visit to a grove and checking over the conditions found there and making a recommendation to cover whatever may be needed. However, it is no question that grove reminders are of value in calling our attention to the various things that should be done, even though we cannot get from them the specific information for individual cases.

In the order of their actual cash value to the grove owners, the things of most importance at present would be:

1st—Nitrating tangerines, in order to size up the fruit;

2nd—Taking every precaution for producing bright fruit, dusting or spraying, as might be advisable;

3rd—Planning and working with the fall fertilizer requirements;

4th—Checking over all grove implements preparatory to cultivation and winter spray work;

5th—Writing out a brief grove record of the condition of the grove and amount of fruit, to be preserved for future reference.

Nitrating Tangerines

It has long been the custom to apply a separate application of nitrate of soda, or some quickly available form of nitrate to bearing tangerines in order to size up the fruit. The results of this practice indicate that it is an advisable procedure and one on which the grower can rely.

The separate application seems to work out better than a complete fertilizer applied at this time, because the tree is able to utilize the immediately available nitrate without any interference from phosphoric or potash, securing, therefore, a stronger growth stimulus than would otherwise be obtained. As a result, the

fruit is sized up and the grower is able to pick larger individual fruits than would otherwise be the case.

Under certain conditions of puffiness, a combination of nitrate and potash seems to have proven more

satisfactory than the nitrate alone. Therefore, we may safely feel that the use of the combination is in order where conditions warrant it. The nitrate and potash, however, is the only combination that has proven of

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"Please Say You Saw It In The Citrus Industry"

any greater value than nitrate alone. The combination can take the form of a mixture of nitrate of soda and sulphate of potash, or of a previously combined chemical, such as the various nitrate of potash forms on the market.

Dusting or Spraying

Rust mites have continued to propagate very freely in spite of favorable weather for the development of fungus. We may be sure, therefore, that in any grove where control results have been taken, some mites will re-appear, possibly in harmful numbers. The only safe procedure is to check over with some frequency, in order to be sure russetting will not occur.

A pest-control calendar should certainly be adopted by the grower for the ensuing winter and spring. Either a decision should be reached immediately to do nothing, or else plans should be laid for the necessary pest control work. This is a thing that should be decided by the grower himself, when he is sure what pests or diseases are present in his grove, to control or overcome.

Every grower should have available the general table put out by the Department of Agriculture and the State Experiment Station, and from this, select those particular sprays

or dusts which will best suit his condition. In the vast majority of cases, three or four times over a grove, in the course of a year, is sufficient to give commercial control on scale pests usually found, and to give a very high percentage on control of rust mites. Such a table would allow for three dustings, of which two would surely be needed, and in many cases, the third can be omitted, and one spray job. The time of making the spray control is usually placed early in the fall, after cool weather arrives. I am personally in favor of omitting all spray work where possible, but there are cases where it is absolutely necessary. In such places, the only thing to do is to make a very thorough job of the work, whether it is scale insects, such as Purple Scale, Florida Red, or fungus troubles such as Lemon Scab and Melanose.

Simple spray tables are easily read and understood and can be followed through much more effectively than those where all the necessary sprays or dusts are included. Further information on this will be gladly furnished on request.

Fertilization

Fertilizing Florida citrus has not settled down into any definite procedure, and, apparently, with the new facts which we are constantly

acquiring and with the new fertilizer materials available, we will be some time reaching that particular stage where definite procedure can be given. We find, for example, that many citrus men recommend always making a summer application and that some will recommend that the summer application may be omitted, or cut down very materially, and we always find considerable allowance for variations in the formula, whether it is applied in June, in the spring, or in the fall. Apparently, three applications a year meet all of our requirements satisfactorily, but if conditions seem to warrant it, a grower is fully justified in using only two, or more than four. The most important part seems to be the tonnage applied for the period of the whole year, and the ratio of the constituents of that tonnage. Generally the recommendations seem to run on the ratio of about 1-2-2, with an occasional 1-2-3. With the use, however, of more concentrated forms of fertilizers, there is absolutely no assurance that the ratio will remain constant. Without going into any further discussion, we can safely conclude that it is an excellent practice to apply a heavy tonnage in the fall of the year, and that, under practically all

Continued on page 24

The Improved Citrus Orchard Heater

Patented August 31, 1914

"It Kills Frost at Little Cost"

The New Improved Citrus Orchard Heater now offers complete protection against frost damage to citrus grower, truck farmer, nurseryman, ferneryman, etc.

NO EXPERIMENT

For over fifteen years the Citrus heater has been tried, proven and accepted as the standard in orchard heating equipment by the growers on the Pacific Coast.

All our heaters are fully covered and protected by patents from the earliest original heaters to our new and latest improved type.

ECONOMICAL

The initial cost of installing the Citrus Heater is low and they are made of heavy copper-bearing, rust-resisting galvanized sheets which give them long life.

The Improved Citrus Orchard Heater is simple in construction, yet strong and durable. They are easy to fill, easy to light, easy to control and may be operated by any kind of unskilled labor.

The fuel-to-heat conversion efficiency is 100 per cent.

Order early and take advantage of low price. We are bringing a shipment of heaters by boat and are offering a specially low price on all orders included in this shipment.

ORDER NOW

Riverside Sheet Metal Works

Florida Address—

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Riverside, Calif.

RUST MITES

Continued from page 7
exposed part is too sunny to suit their taste and the more shady part too dark.

Control

Sulphur is the sovereign remedy for rust mites as of any number of the spider tribe to which rust mites belong. (Altho usually spoken of as insects, rust mites and spiders are not true insects. Their breathing apparatus is built on an entirely different principle which may account for the ease by which they are killed with sulphur). Sulphur may be applied to the trees either in the form of a dust or as a spray. Which of these two will be found most economical will depend much upon the size of the grove and the equipment of the grower. Most groves need to be sprayed more or less frequently for scale insects and whitefly and the small grower will often find it more economical to use this same equipment for controlling rust mites rather than going to the expense of buying both a spray machine and a duster. But the larger grower can scarcely afford to do without a dusting machine. Dusting, in most groves, is much cheaper than spraying but the great advantage is that it can be done much more rapidly. We have seen that rust mites are very rapid breeders. If it takes a man ten days to cover his grove with a spray machine, even though he began to spray promptly upon the appearance of rust mites in numbers, much damage would result to that fruit sprayed the last days. It is also somewhat easier for a careless crew to skip part of a tree with spray than with dust. A power duster going through a grove throws a fog of dust and is more liable to cover all parts of the grove, even if the operator is a little careless, than in the case of a spraying crew. As a general thing trees dusted with sulphur show fully as good control of rust mites as those sprayed with lime-sulphur. The exception will be when the dusting is followed inside of a day or two by a heavy rain. Sulphur is somewhat more washed off than lime-sulphur. As we have seen, the eggs hatch in about three days after being laid. Since neither the spray nor the dust is very effective in killing the eggs, it is quite essential in order to secure a thorough cleanup, that the sulphur stay on for three days so that the young rust mites hatching out from these eggs will be killed.

The dusts commonly used are made from the flowers of sulphur as

THE CITRUS INDUSTRY

this is usually finer than the flour of sulphur. The lighter and smaller the particles of sulphur, the better. Frequently, in order to make it go thru a duster somewhat better, sulphur is mixed with from 5 to 10 percent of lime.

The liquid spray used for killing rust mites is lime-sulphur, a liquid made by boiling together lime and sulphur until the two combine chemically. I want to call your attention here to the rather loose usage of referring to a mixture of lime and sulphur as "lime-sulphur". The name "lime-sulphur" should be reserved for the product which one gets by boiling together lime and sulphur. The product is no longer either lime or sulphur but a mixture of polysulphides of lime. The strength used for rust mites is one part of lime-sulphur to from 50 to 65 parts of water.

Rust mites are not equally injurious to all groves. Many groves in low, hammock sections that are never cultivated remain comparatively free from rust mites year after year even when no spraying is done. Groves with a good cover crop are much less liable to be attacked by rust mites than one where clean cultivation is employed. The reason for that is undoubtedly that the reflection of the sun from the sandy soil lowers the humidity in the trees and makes conditions less favorable for the growth of the rust mite fungus of which we have spoken.

AND HIS NEIGHBOR SOLD OUT FOR A RUSTY SHOT GUN

Continued from page 19

on March 3, 1926, at the Pine Grove Grange Hall, the entire countryside gathered to do homage to this patriarch" (I quote The Western Farmer), "in celebration of the fiftieth anniversary of the day upon which he first moved upon his wilderness homestead, now the ultra-modern farm.

"Mr. Lage, through his own efforts, worked out a \$300 investment in the most glorious wilderness of the West to a fullness of years and a property aggregating about \$100,000.

"Hans Lage has fulfilled his destiny," concludes The Western Farmer. "He blazed his empire out of a wilderness and made possible, by his industry and foresight, the settlement of a territory that now supports a thousand homes and the product of this community commands top prices in all civilized countries—the Hood River Apple."

▲ "Please Say You Saw It In The Citrus Industry"

"Always a Clean Job"

A grower recently said that he sprayed his grove with VOLCK each year because if he made a thoro application he could leave the grove alone and feel satisfied that he had a clean job. With other materials he didn't know whether he'd have to do the job all over or not. Spray with VOLCK for dependable results.

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National Heaters are manufactured by American Can Co.

THE 1928-29 GRAPEFRUIT SITUATION IN THE ISLE OF PINES

The early crop of grapefruit in the Isle of Pines is now estimated at 100,000 crates, according to a report received in the Foreign Service of the Bureau of Agriculture Economics from Vice Consul John J. Coyle at Nueva Gerona, Isle of Pines. This figure, representing only the early crop, is the same as the total production shipped from the Island last year. Last year's crop, however, was 50 per cent below the average for the previous five seasons. It is believed that the total production this year will not be very much in excess of the early fruit crop, although it is as yet too early to make an accurate estimate.

The grapefruit shipping season of the Isle of Pines usually begins in August and ends in May or June of the following year. Due to the unusually early crop this year, however, exports to England began on July 15 and to the United States on July 27.

Up to August 1 the shipments to England had totaled 1,793 crates and those to the United States 795 crates. The crop this year is said to be of good quality. Speculators have purchased the major portion of the crop at an average price of \$2.50 per crate, f. o. b. Nueva Gerona, states Vice Consul Coyle. Reports from the British markets indicate that no appreciable supply of grapefruit is in sight for that market during August and September and a part of October. This fact, coupled with the fact that growers on the Island are making every effort to reap the advantages of the favorable prices obtaining in the American markets before the arrival of the Florida crop, indicates that shipments will be heavy during August and September. It is believed that the entire early crop of grapefruit will have been shipped from the Island by October 15.

WATSON RETURNS

W. L. Watson, who has had a year's leave of absence, is returning to take up his duties as county agent in Duval County on August 16. During his absence, Wm. Gomme has been acting county agent.

Mr. Watson is, in point of service, one of the oldest county agents in the United States. During recent years he has been in poor health and the county commissioners granted him a year's leave of absence at the request of A. P. Spencer, vice-director of extension at Gainesville.

YELLOW LEAF— a Danger Sign for Citrus!

*"Soda" will restore these trees
to health*

IN September many groves are tinged with yellow. This is a danger sign. It means that the trees have an insufficient supply of nitrogen. They are hungry—they must be fed!

Use Soda

Chilean Nitrate of Soda will quickly restore your groves to health. Its nitrogen is quickly and completely available. Apply three to five pounds per tree. The leaves will turn green again. Fruit will mature early, large and full-flavored.

On trees where heavy crops are being carried, early fall application of Chilean Nitrate of Soda is necessary to increase the size of the fruit. Test after test on Citrus has shown that Nitrate of Soda pays big profits—for finer quality and larger yields mean more dollars per acre.

Trees Need Conditioning for Winter

Trees which go into the winter season in perfect condition are the ones that may be expected to produce a good crop of blooms next February. Careful growers safeguard their groves in the fall by the liberal use of Chilean Nitrate of Soda.

FREE—a 44 page booklet "How to Use Chilean Nitrate of Soda" giving full information on all crops, will be sent you free upon request. Simply write us or tear out this advertisement and send with your name and address. In replying, please refer to ad 25-A.

Chilean Nitrate of Soda

EDUCATIONAL BUREAU

Orlando Bank & Trust Building
Orlando, Florida



"IT'S NITRATE OF SODA — NOT LUCK"

"Please say you saw it in the Citrus Industry"

CITRUS COMMENTS

Continued from page 21

conditions, the tonnage ratio should be high in potash. Thus, if a grove will stand 4 per cent ammonia, the potash end of the formula is usually put at 10 or 12 per cent, and it is a common practice, where a 3 per cent ammonia goods is used, to use a high potash content in any event. The reasons for this are frequently well stated in write-ups appearing in current literature, and now are more or less common knowledge. Their repetition and emphasis, however, is so important that they should be frequently re-read by all of us. The main reasons for the use of a high potash at this season of the year is because of its well defined influence on fruit maturity, and because of the knowledge that it also favorably affects the formation of fruit buds, being possibly, absolutely necessary to the setting of good crops of fruit the following season. The favorable influence of a high ammonia in the fall is possibly not realized so well. Fruit trees are never dormant and are constantly calling on the food supplies in the soil. They are able through their mechanism to balance within rather narrow limits the amounts of each which is taken up. Potash alone tends to harden and mature. In combinations with ammonia, we get a normal hardening or maturity, which is a different thing entirely to the over-hardening sometimes seen in many groves, due to a lack of a vegetated condition. Supplying, therefore, as much nitrate as the tree can properly use we would get a normal maturity which is more resistant to cold, possibly from 3 to 5 degrees, which is more likely to bloom in the following spring and which will always mature and hold the crop on the tree in better shape.

Apparently, any terminal wood of sufficient age will bloom, provided it has had the right balance of fertilizer behind it. Therefore, as a rule, one does not need to worry about the amount of spring, summer or fall growth that may occur. Apparently, the previous spring or summer growth will bloom, if given the opportunity, but we also know that so-called water-sprouts will bloom freely under certain conditions, and that new growth will often have a terminal bloom in the spring of the year. There is, therefore, no reason for us to assume at the present time that any particular growth means a crop the following season. We seem to get much further along by considering the color of the tree as a whole, rather

than the amount of growth which may have occurred.

Cultivation

Beginning with the fall application of fertilizer, cultivation is usually started. The tractor and harrow, both arranged so that they will not cut deeply into the soil, are commonly used and are satisfactory. Shallow plowing is also satisfactory. Especially in those groves where *crotalaria* is used as a cover crop there is no difficulty experienced in starting fall cultivation at the time of fertilizing and continuing same at intervals during the winter and spring months, gradually working in the cover crop until by spring none of it is left on the surface. In those groves where *Crotalaria* is present, it invariably is immature and has not effectively re-seeded. Therefore, one is faced with the dilemma of leaving a sufficient stand for re-seeding, or losing all that has been planted, and in which case it must be re-planted again the following year. Where practicable some of the *crotalaria* can be left, and in addition to the re-seeding which will be obtained most of the pumpkin bugs will remain on the *crotalaria* until it is killed by frost.

Cultivation during the winter works up soil bacterial activities and will assist in making fertilizer materials available, even during extremely dry weather. Furthermore, there seems to be some conservation of soil moisture as a result, or at least there is less wilting in those groves where cultivation is started

early than in those where it is neglected, though the lack of wilting may be due to a further concentration of cell-sap.

Irrigation can be made to take the place of practically all cultivation, though it seems at the present time that it is always advisable to harrow in cover crops, even where irrigation is a regular practice.

Grove Record

As has been pointed out before, I find a grove record invaluable in fig-

PAINTER'S

Simon Pure Citrus

and

Gem Farm Crop
FERTILIZERS

ARE

"Time Tried and Crop
Tested"

Our Brands are the Acknowledged Standard by which Growers of Florida have judged all Fertilizers for nearly 40 years.

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THE E. O. PAINTER
FERTILIZER CO.

Jacksonville, Florida

Clamp Trucks

Rebuilt for

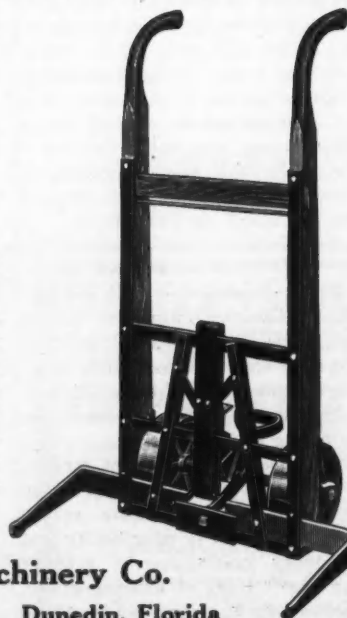
\$19.50

If your old Bryan clamp trucks are badly worn send them in and we will replace all working parts except clamps, put in new roller bearing wheels and new axle assembly for the sum of \$19.50. When you get them back they are like new trucks. New clamps or new handles are extra.

Florida Citrus Machinery Co.

B. C. Skinner, Pres.

Dunedin, Florida



uring out, first, the fertilizer needs of a grove, and second, the results from spray and dusting work, and third, in deciding if I am a good grove man or not, because by referring to very simple statement records of grove conditions and crop yield, I can tell if my work during the past year has been satisfactory to me, and I can immediately get an idea as to where I may be wrong.

A grove record is probably the most important piece of machinery about a grove. It cannot be bought, but it can be made.

CITRUS APHIDS

Continued from page 9

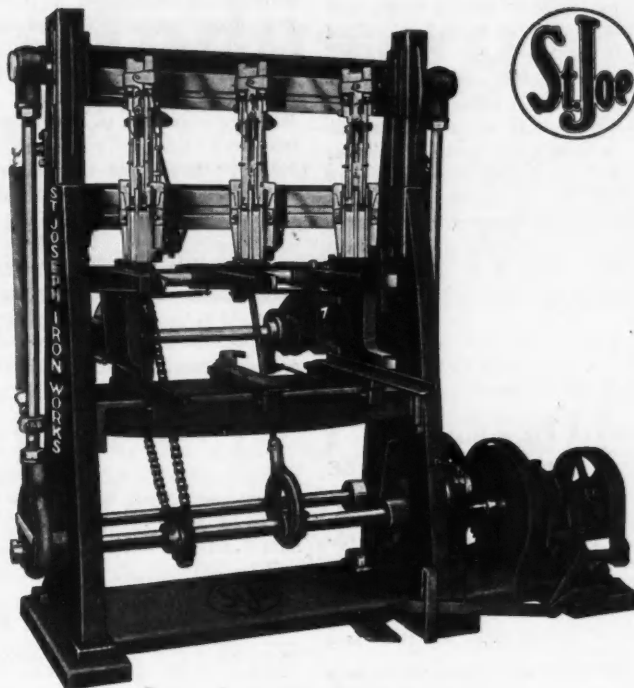
secticide.

Mr. Thompson and Mr. Miller working at Lake Alfred have during the past two years found that one half of the lime in the nicotine sulphate-lime dust can be replaced with sulphur. This gives us a dust which will not only kill aphids but also gives good control of any rust mites or red spiders that may be present in the grove. In other words we have here a very effective combination of dust for both rust mites and aphids. Another good dust and a cheap one is finely ground tobacco, that which goes under the trade name of snuff No. 2. It is very effective if dusted on the trees in the early morning when they are wet with dew. This, of course, is really a spray procedure as the nicotine dissolves in the water and kills the aphids. This dust is not effective when dusted on a dry tree. However, it would also make a good dip for treating the trees during the winter.

We feel that as a result of our work for the past four years we are in a much better position to fight citrus aphids than heretofore. If the growers will follow our directions, there is no need of the citrus aphid exacting the toll from the citrus industry as they did in the springs of 1924 and '25. We feel that we now know how to handle the insect effectively and economically.

Citrus growers are advised to poison army worms which appear on cover crops in groves. If the crop is cut immediately the worms are likely to go to the trees and cause serious damage. Poison bran bait scattered on the cover crop will not render it unfit for hay provided it is not cut within a few days, according to J. R. Watson, of the Florida Experiment Station.

Here it is!



... an entirely new ORANGE BOX ASSEMBLER

We offer for your consideration, Mr. Packinghouse Manager, this simple and very efficient "St. Joe" stapling machine for assembling orange boxes.

You get a stronger, truer box when you assemble it the "St. Joe" stapled way.

DEPENDABLE—every staple driven home at each stroke.

SAFE—no nails in the finished job to protrude and injure the loader, or damage clothing.

SPEEDY—more boxes with less work on the part of the operator, because of the automatic feed.

STAPLING HEADS—the new design "St. Joe" stapling heads (patent pending) automatically adjust themselves to varying thickness of box material. This machine is equipped with these heads.

You'll want to know more about this time and money-saving assembler. Write for bulletin describing the machine in detail.

We want you to become familiar with the name "St. Joe". In stapling machinery it represents over 50 years experience and progress. Above all it stands for Dependability.

ST. JOSEPH IRON WORKS

State & Water Sts.

St. Joseph, Michigan

STARTING THE YOUNG GROVE

Continued from page 6

Cover Crops

Cover crops by no means should be forgotten. It is during the first five or six years, while the trees are small and the open spaces large, that all the cover crops should be raised that can be raised, at least during the summer months; and on the lighter soils in addition winter cover crops should be planted in such a way as not to endanger the trees to possible frost injury. After the trees are large and practically shade the entire ground space very little in the way of cover crops and gasses can be grown; hence, it is of the greatest importance while the trees are young, and even one, two, and three years before the trees are planted, to supply the soils with all the humus that can be raised.

OKALOOSA CLUB BOYS

TO BUY FINE CALVEE

In an effort to finance the purchase of pure bred Jersey calves for his club boys, County Agent R. J. Hart of Okaloosa County has hit upon a scheme to have his boys grow an acre of cotton each this year and

THE CITRUS INDUSTRY

take the proceeds and buy the calves this fall. The plan is receiving the hearty approval of extension officials here.

In Okaloosa County Mr. Hart has 61 boys lined up for the project at present. In addition it is very likely that many others will join the calf club when it is organized in the fall. Boys from the Smith-Hodges agricultural schools at Baker and Laurel Hill are expected to swell the numbers when the calves are bought. Mr. Hart is seeking to lay the foundation for a permanent dairy industry in Okaloosa County.

Farmers of Wakulla County were surprised recently when they saw year old calves which weighed 600 to 850 pounds. The calves were seen on a South Georgia stock farm. The trip was planned by County Agent D. M. Treadwell.

As a result of a campaign for homegrown feeds by County Agent L. T. Nieland, Flagler County dairymen built and filled three silos.

GROVE ON HIGHWAY NEAR PANAMA CITY, ROBT. LAMBERT, OWNER. FOUNTAIN, FLA.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

WANT TO hear from owner having farm for sale; give particulars and lowest price. John J. Black, Box 93, Chippewa Falls, Wisconsin.

WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

MISCELLANEOUS

FOR SALE: Packing House Machinery Outfit, complete, 2 car per day capacity, first class condition. The owner is re-placing with new four car capacity outfit. Florida Citrus Machinery Co., Dunedin, Fla.

RUNNER peanuts—Spanish peanuts Early speckled - Osceola - White Chinese and Bunch Velvet Beans. All varieties peas and Soybeans. Large or small lots. H. M. Franklin, Tennille, Georgia.

WHITE WYANDOTT Cockerels, regal strain—the best in the country, direct from Martin pens. Utility and show birds \$5.00 each; also eggs for hatching \$5.00 per 15. W. A. King, Gen. Del., St. Petersburg, Fla.

SELECT CITRUS fruit trees for home and commercial planting, special summer prices. A. E. Nichols, Box 262W, Tampa, Fla.

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

WANTED

COMPLETE LINE OF CITRUS GROWERS' SUPPLIES

A well known reputable firm of national scope, marketing certain materials required by citrus growers, is extending its line of merchandise to cover complete requirements of its customers.

If you have something excellent to merchandise—fertilizer, orchard heaters, pest control material or equipment, or any similar product for wide distribution—I can tell you whom you should see.

Address: J. T. Pierson, 551 South Union Drive, Los Angeles, Calif.

"Please Say You Saw It In The Citrus Industry"

FOR SALE one 34-ft. old style single or half Parker Sizer. P. O. Box 6, Fort Meade, Fla.

BEGGARWEED SEED. Place your order for Beggarweed seed now and be assured of delivery. Write for special prices. Wm. G. Ranney, Box 297, Monticello, Fla.

PUREBRED PULLETS FOR SALE—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

FOR SALE: Skinner Washer. 4 runway, 16 foot, good condition, owner is replacing by a 6 runway, 18 foot machine. Florida Citrus Machinery Co., Dunedin, Fla.

LAREDO SOY BEANS, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

FARMER AGENTS: Make \$25.00 weekly selling Comet Sprayers. Profitable winter employment. You take orders. We deliver and collect. Commissions weekly. Established 35 years. Particulars free. Rusler Co., Box C-18, Johnstown, Ohio.

FOR SALE—All varieties bananas and citrus trees. D. A. Nigels, Palm Harbor, Fla.

FOR SALE: 5 runway foot Spiral Polisher. Owner is replacing by an 8 runway, 16 foot, spiral polisher. Florida Citrus Machinery Co., Dunedin, Fla.

FOR SALE—Dairy and stable manure, ear lots. Link & Bagley, Box 464, Tampa, Fla.

AVOCADOS - SEED — Grafted. Reliable bearers only. John B. Beach, West Palm Beach, Florida.

PLANT AVOCADOS in Redland Section, Dade County, where they thrive best. Best paying crop in United States. Send for prospectus. Brooks Properties, Realty Board Bldg., Miami.

BABY CHICKS: Send no money, shipped C. O. D., pay mail man when delivered. Leghorns \$14.00 per 100; reds, orpingtons, minors \$16.00; mixed \$13.00; live delivery, postpaid. Florida Baby Chickery, Lakeland, Florida.

COW PEAS. Brabham's, Irons and Whippoorwills. Nice clean stock. Chase & Co., Sanford, Florida.

ROUGH LEMON Seedlings in any quantity, special summer sale, very attractive prices. A. E. Nichols, Box 262W, Tampa, Fla.

FOR SALE—Complete unit citrus packing house machinery, Skinner washer and polisher Stebler sizer two car capacity. G. A. Robinson, Lake Wales, Fla.

CLASSIFIED

Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

REAL ESTATE

WILL EXCHANGE West Texas cattle ranch for unimproved or improved land in Florida. What have you? Give price and full particulars. T. E. Bartlett, 3410 McKinley Ave., El Paso, Texas.

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OCKLAWAHA NURSERIES INC.

"Pedigreed Citrus Trees" Florida
Lake Jem.

FOR SALE—Pineapple land in winterless Florida. \$15 an acre. Almont Ake, Venus, Fla.

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Can be Secured by MAIL
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